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Telecommunications**

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OFFICE OF SECRETARY

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November 15, 1996

**William F. Caton, Acting Secretary  
Federal Communications Commission  
1919 M Street, N.W.  
Room 222  
Washington, D.C. 20554**

**Re: In the Matter of Petition to Amend Part 68 of the  
Commission's Rules to Include Terminal Equipment Connected To  
Basic Rate Access Service Provided via Integrated Services Digital  
Network Access Technology, CC Docket No. 93-268; and In the  
Matter of Petition to Amend Part 68 of the Commission's Rules to  
Include Terminal Equipment Connected to Public Switched Digital  
Service, RM 7815 and RM 6147, REPORT and ORDER, Adopted:  
January 11, 1996, Released: March 7, 1996**


**Dear Secretary Caton:**

Attached please find the response of Committee T1 with respect to the above-referenced proceeding. Committee T1, sponsored by the Alliance for Telecommunications Industry Solutions, Inc., was requested by the Federal Communications Commission ("FCC" or "Commission") pursuant to paragraph 17 of the above-referenced Report and Order to "edit the RJ48 and SJA series jack drawings that appear in the ATIS Committee T1 Report Number 5 of June 1990, and to include appropriate Facility Interface Codes for the ISDN PRA, ISDN BRA, and PSDS Types I, II, and III services."

As noted in our letter to you dated June 10, 1996, Committee T1 referred this request to its Technical Subcommittee T1E1 - the Interfaces, Power and Protection of Networks Technical Subcommittee of Committee T1. T1E1 has responsibility for work related to interfaces associated with user access to telecommunications networks among other things.

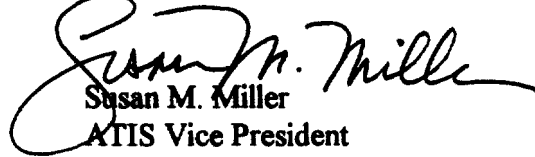
For your convenience, we have attached those specific pages which were amended as a result of the FCC's request as well as a newly published T1E1 Technical Report on Carrier to Customer Installation Interface Connector Wiring Configuration Catalog, in its entirety.

No. of Copies 078  
Listed 1000



If you have any further questions, please do not hesitate to contact me at (202) 434-8828, Gerald Peterson, Committee T1 Chairman (908) 234-4620, or Harold Daugherty, Director for Committee T1 at (202) 434-8830. Thank you.

Sincerely,



Susan M. Miller  
ATIS Vice President  
and Counsel to Committee T1

cc: Reed E. Hunt, Chairman  
James H. Quello, Commissioner  
Rachelle B. Chong, Commissioner  
Susan Ness, Commissioner  
William von Alven, Public Utilities Specialist, CCB

## **Instructions for updating Technical Report #5**

1. Remove pages No. 46 and No. 47.
2. Replace numbered pages with newly revised pages
3. Add Appendix D after appendix C. (End of document).

Note: Pages with number and letter are to be inserted after the regularly numbered page.

**Table 3: Analog Facility Interface Code (FIC) to Connector Matrix**

Jacks	Analog Facility Interface Codes										
	0 L 1 3 A	0 L 1 3 B	0 L 1 3 C	A X 1 5 X	M X 1 3 X	T L 1 1 M/E	T L 1 2 M/E	T L 3 1 M/E	T L 3 2 M/E	T C 3 1 M/E	T C 3 2 M/E
RJ11C/W	1	1	1	1	1						
RJ11T	1	1	1	1	1						
RJ14C/W	2	2	2	2	2						
RJ14X	2	2	2	2	2						
RJ15C	1	1	1	1	1						
RJ17C	1	1	1	1	1						
RJ21X	25	25	25	25	25						
RJ25C	3	3	3	3	3						
RJ1CX						1	1	1	1	1	1
RJ2EX						12					
RJ2FX							8				
RJ2GX								8		8	
RJ2HX									6		6
RJ61X	4	4	4	4	4						

Number indicates the maximum number of circuits per jack.

Table 7. Network Channel Interface Code Translation-Protocol Codes

Note: This list is not all inclusive and is intended to aid in the selection of the proper interface connector.

Protocol Code	Impedance/ Protocol Option	Definition
AC		Provides for the transmission of voice and 20hz ringdown signaling
DA		Provides for the transmission of data and/or control supervisory signals
DB		Provides for the transmission of data and/or control supervisory signals
DC		Direct current or voltage
DE		Provides for the transmission of data or tones
DS	6	44.736 Mb/s Digital Access
DU		Digital access interface
	5 24	2.4 kb/s
	5 24S	2.4 kb/s with secondary channel
	5 48	4.8 kb/s
	5 48S	4.8 kb/s with secondary channel
	5 96	9.6 kb/s
	5 96S	9.6 kb/s with secondary channel
	5 19	19.2 kb/s
	5 19S	19.2 kb/s with secondary channel
	5 56	56 kb/s
	5 56B	Type I or Type III PSDS
	5 56S	56 kb/s with secondary channel
	5 64	64 kb/s
	7 56B	Type II PSDS
	9	1.54 Mb/s
EA		Type I E & M signaling
EB		Type II E & M signaling
GS		Ground start signaling - closed end function presented by end-user
LA		Type A registered port
LB		Type B registered port
LC		Type C registered port
LR		Private Line automatic ringdown with PLAR equipment provided by the LEC
LS		Loop start signaling - closed end function presented by the end-user
NO		Provides for voice transmission with no signaling provided by the LEC
PR		Provides for transmission of mcontrol signals (voice frequency) for protective relaying
RV		Reverse battery (trunk signaling at interface)
TF		Telephoto interface

**Table 12. Switched Digital Matrix \***

<b>Jacks</b>	<b>ISDN Basic Access</b>	<b>PSDS 2-Wire</b>	<b>PSDS 4-Wire Single</b>	<b>PSDS 4-Wire Multiple</b>
RJ48S			1	
RJ48T				12
RJ11C	1	1		
RJ21X	25	25		
RJ49C	1			

Number indicates the maximum number of circuits per jack

ISDN = Integrated Services Digital Network

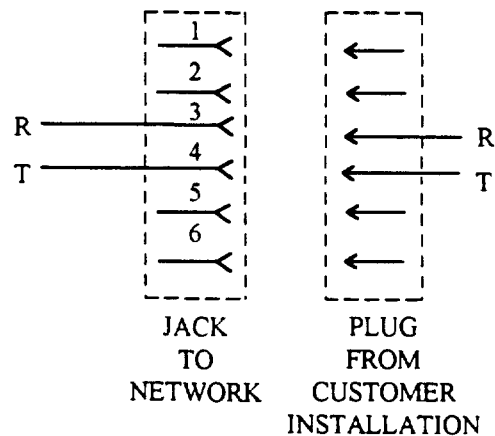
PSDS = Public Switched Digital Service

- **Note:** ISDN Primary rate connectors are the same connectors used for DS 1 services. See Table 9.

# 5. CARRIER/CI INTERFACE CONNECTOR WIRING CONFIGURATIONS

<u>PAGE</u>	<u>FIGURE</u>	<u>CONNECTOR</u>	<u>ISSUE DATE</u>
23	5.1	RJ11C/W	June, 1996
23A	5.1.1	RJ11T	June, 1990
24	5.2	RJ14C/W	"
25	5.3	RJ14X	"
26	5.4	RJ15C	"
27	5.5	RJ17C	"
28	5.6	RJ18C/W	"
29	5.7	RJ21X	"
30	5.8	RJ25C	"
31	5.9	RJ26X	"
32	5.10	RJ27X	"
33	5.11	RJ41S	"
34	5.12	RJ45S	"
35	5.13	RJ61X	"
36	5.14	RJ2MB	"
37	5.15	RJ4MB	"
38	5.16	RJ1DC	"
39	5.17	RJ2DX	"
40	5.18	RJ2EX	"
41	5.19	RJ2FX	"
42	5.20	RJ2GX	"
43	5.21	RJ2HX	"
44	5.22	JM8	"
45	5.23	RJXCX	November, 1990
48	5.26	SJA56	June, 1996
49	5.27	SJA57	"
50	5.28	RJ48C	June, 1990
51	5.29	RJ48X	"
52	5.30	RJ48M	"
53	5.31	RJ48H	"
54	5.32	RJ48S	June, 1996
55	5.33	RJ48T	"
55A	5.33.1	RJ49C	"
56	5.34	SJA44	June, 1990
57	5.35	JM25X	December, 1993
58	5.36	SJASC	"

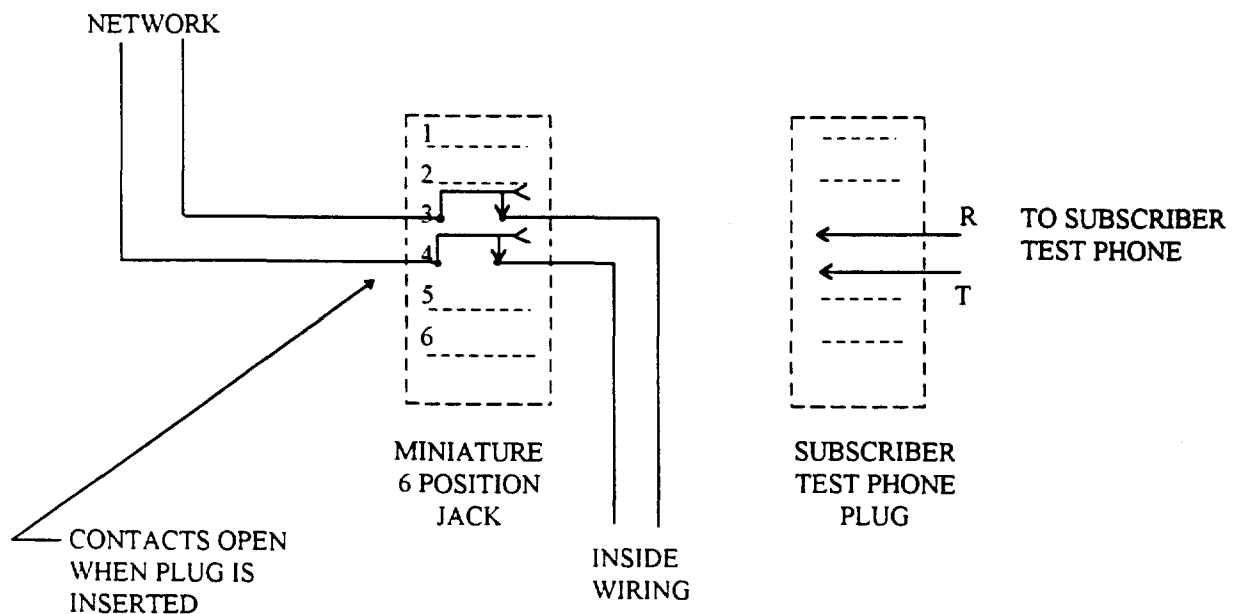
UNIVERSAL SERVICE ORDER CODE (USOC):	RJ11C/W
ELECTRICAL NETWORK CONNECTION:	SINGLE LINE TIP AND RING: RJ11W FOR WALL MOUNTINGS AND RJ11C FOR ALL OTHERS
MECHANICAL ARRANGEMENT:	6 POSITION MINIATURE MODULAR JACK
USAGE:	SINGLE EXCHANGE ACCESS LINE
INTERFACE CODES:	OL13A; OL13B; OL13C; AX15X; MX13X; METALLIC 2W; 02LA2; 02LB2; 02LC2; 02LS2; 02GS2; 02RV2-T; 02LR2; 02AC2; 02NO3; 02DU5-56B
WIRING DIAGRAM:	02DU7-56B





5.1.1 RJ11T June 1996

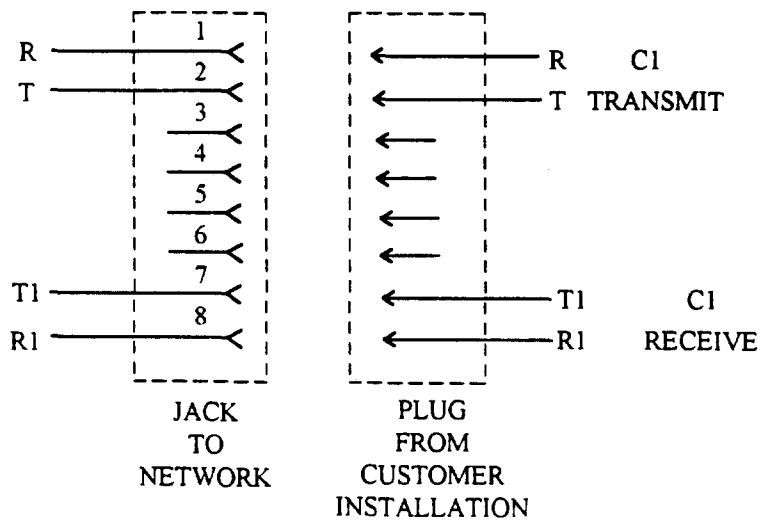
UNIVERSAL SERVICE ORDER CODE (USOC):	RJ11T
ELECTRICAL NETWORK CONNECTION:	SINGLE LINE TIP AND RING
MECHANICAL ARRANGEMENT:	6 POSITION MINIATURE MODULAR JACK (SPECIAL)
USAGE:	SINGLE EXCHANGE ACCESS LINE
INTERFACE CODES:	OL13A; OL13B; OL13C; AX15X; MX13X; METALLIC 2W; 02LA2; 02LB2; 02LC2; 02LS2; 02GS2; 02RV2-T; 02LR2; 02AC2; 02NO2;
WIRING DIAGRAM:	



**Application note:** This connector is different than the RJ11C/W in that customer wiring is connected to the network without the use of a plug. When a plug is inserted into the RJ11T, customer wiring and CPE on the same line will be disconnected.

5.26 SJA56 June 1996

UNIVERSAL SERVICE ORDER CODE (USOC):	SJA56
ELECTRICAL NETWORK CONNECTION:	TIP/RING AND T1P1/RING1
MECHANICAL ARRANGEMENT:	8 POSITION MINIATURE MODULAR KEYED JACK
USAGE:	SWITCHED SUBRATE DIGITAL SERVICE (PSDS) AND SYNCHRONOUS DIGITAL DATA
INTERFACE CODES:	04DU5-19; 04DU5-19S; 04DU5-24S; 04DU5-48S; 04DU5-56S; 04DU5-96S; 04DU5-64
WIRING DIAGRAM:	



5.27 SJA57 June 1996

UNIVERSAL SERVICE ORDER CODE (USOC): SJA57

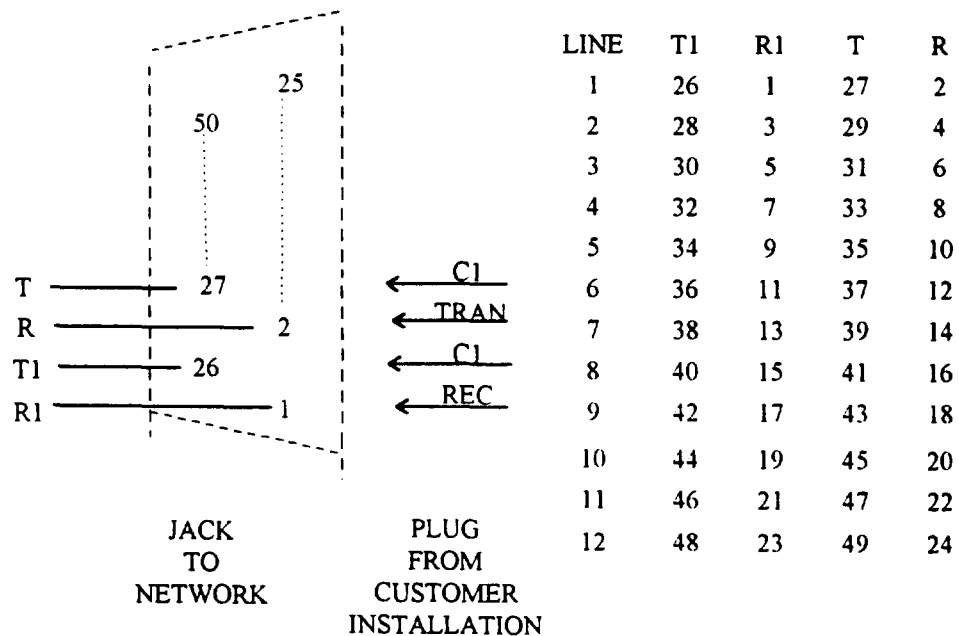
ELECTRICAL NETWORK CONNECTION: UP TO 12 TIP/RING AND 12 T1P1/RING1 CONNECTIONS

MECHANICAL ARRANGEMENT: 50 POSITION MINIATURE RIBBON JACK

USAGE: MULTIPLE SWITCHED SUBRATE DIGITAL (PSDS) AND SYNCHRONOUS DIGITAL DATA ACCESS LINES

INTERFACE CODES: 04DU5-19; 04DU5-19S; 04DU5-24S; 04DU5-48S; 04DU5-56S; 04DU5-96S; 04DU5-64

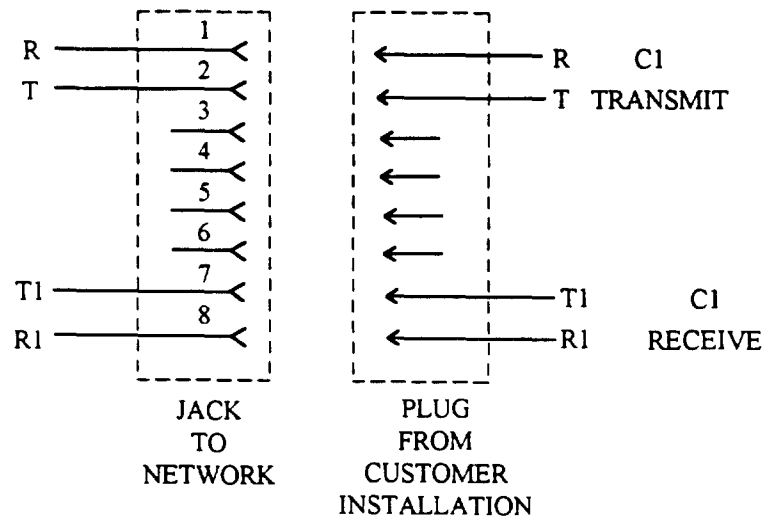
WIRING DIAGRAM:



NOTE: THE EXCHANGE CARRIER WILL WIRE THE LINES TO THE CONNECTOR IN THE SEQUENCE DESIGNATED BY THE CUSTOMER.

5.32 RJ48S June 1996

UNIVERSAL SERVICE ORDER CODE (USOC):	RJ48S
ELECTRICAL NETWORK CONNECTION:	TIP/RING AND T1P1/RING1
MECHANICAL ARRANGEMENT:	8 POSITION MINIATURE MODULAR KEYED JACK
USAGE:	SWITCHED SUBRATE DIGITAL SERVICE (PSDS) AND SYNCHRONOUS DIGITAL DATA
INTERFACE CODES:	04DU5-24; 04DU5-48; 04DU5-56; 04DU5-56B; 04DU5-96; LADC
WIRING DIAGRAM:	



5.33 RJ48T June 1996

UNIVERSAL SERVICE ORDER CODE (USOC): RJ48T

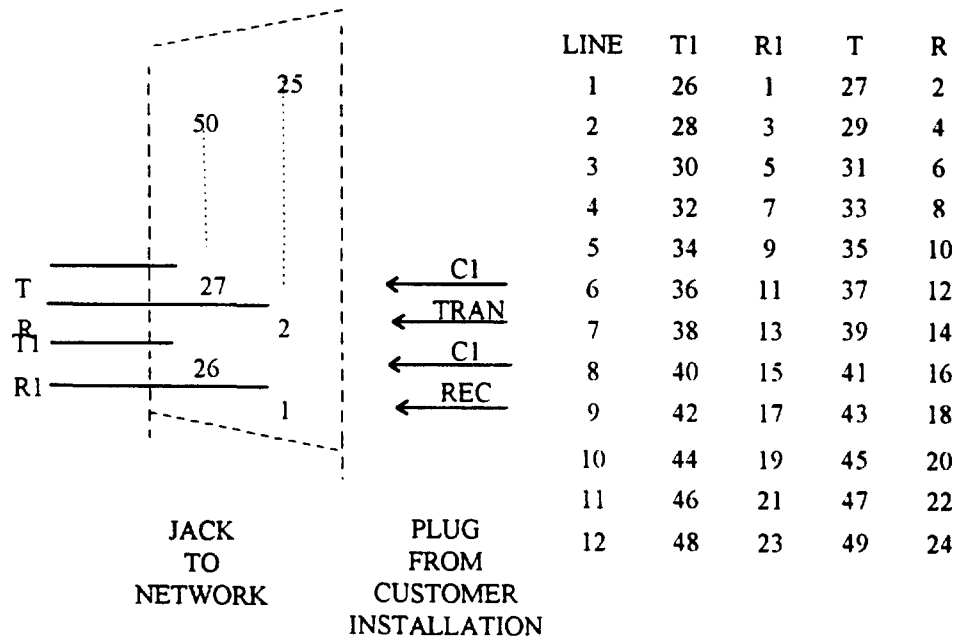
ELECTRICAL NETWORK CONNECTION: UP TO 12 TIP/RING AND 12 T1P1/RING1 CONNECTIONS

MECHANICAL ARRANGEMENT: 50 POSITION MINIATURE RIBBON JACK

USAGE: CONNECTING MULTIPLE LOCAL AREA DATA CHANNELS OR SUBRATE DIGITAL ACCESS LINES

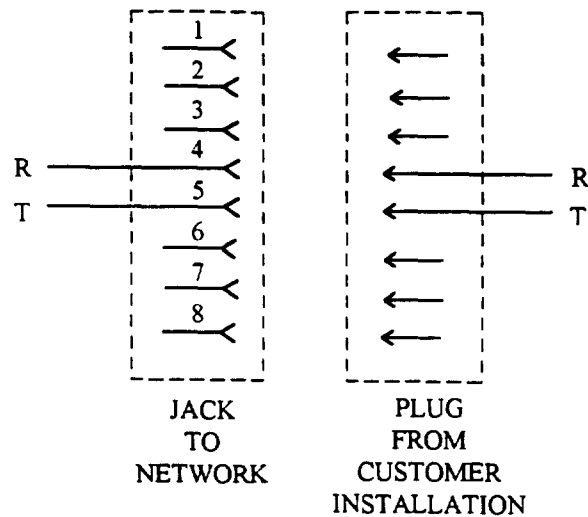
INTERFACE CODES: 04DU5-24; 04DU5-48; 04DU5-56; 04DU5-56B; 04DU5-96; LADC

WIRING DIAGRAM:



NOTE: THE EXCHANGE CARRIER WILL WIRE THE L LINES TO THE CONNECTOR IN THE SEQUENCE DESIGNATED BY THE CUSTOMER.

UNIVERSAL SERVICE ORDER CODE (USOC):	RJ49C
ELECTRICAL NETWORK CONNECTION:	SINGLE LINE TIP AND RING
MECHANICAL ARRANGEMENT:	8 POSITION MINIATURE MODULAR
USAGE:	ISDN BASIC ACCESS LINE
INTERFACE CODES:	02IS5
WIRING DIAGRAM:	



## APPENDIX D: Obsolete SJA Type Connectors

These connector wiring configurations listed in this appendix are for information only.

### List of Connector Configurations:

SJA 11

SJA 48

## Appendix D1

UNIVERSAL SERVICE ORDER CODE (USOC):

SJA11

ELECTRICAL NETWORK CONNECTION

SINGLE LINE T/R

MECHANICAL ARRANGEMENT:

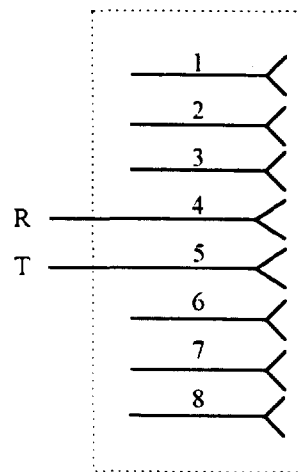
8 POSITION MINIATURE MODULAR JACK

USAGE:

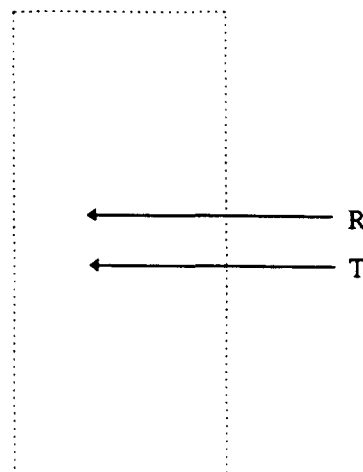
ISDN BASIC ACCESS LINES

INTERFACE CODES:

WIRING DIAGRAM:



JACK  
TO  
NETWORK

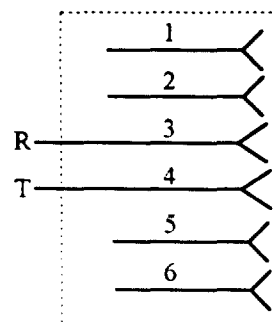


PLUG  
FROM  
CUSTOMER  
INSTALLATION

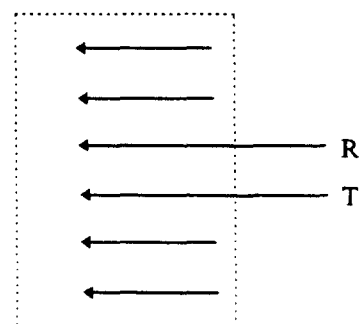


## Appendix D2

UNIVERSAL SERVICE ORDER CODE (USOC):	SJA48
ELECTRICAL NETWORK CONNECTION:	SINGLE LINE TIP AND RING
MECHANICAL ARRANGEMENT:	6 POSITION MINIATURE MODULAR JACK
USAGE:	SINGLE PUBLIC SWITCHED DIGITAL ACCESS LINE
INTERFACE CODES:	
WIRING DIAGRAM:	



JACK  
TO  
NETWORK



PLUG  
FROM  
CUSTOMER  
INSTALLATION

**Committee T1 -  
Telecommunications**

**Report No. 5**

**September 1996**

**A Technical Report  
on  
Carrier to Customer  
Installation Interface  
Connector Wiring  
Configuration Catalog**

**Prepared by  
T1E1.3 Working Group  
on Connectors and  
Wiring Arrangements**

**Committee T1 is sponsored by the Alliance for Telecommunications Industry Solutions  
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**NOV 15 1996**

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**Technical Report**

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**TECHNICAL REPORT #5  
CARRIER TO CUSTOMER INSTALLATION  
INTERFACE CONNECTOR WIRING CONFIGURATION CATALOG**

**Abstract**

This catalog describes the wiring configurations of the connectors used at the Carrier to Customer Installation Interface and for connector configurations used within the Customer Installation (CI). This catalog is a total replacement of T1 Technical Report 5-1990. The connector configurations contained in this catalog represent those configurations that are specified in Part 68 of the Federal Communications Commission Rules and Regulations, Carrier Technical References and ANSI Approved Standards.

**Prepared by:**

**T1E1.3**

**Working Group on Connectors and Wiring Arrangements**

## FOREWORD

This Technical Report has been developed to provide a ready reference for the connector configurations that are utilized at the carrier to customer installation interface. This report is a total replacement of T1 Technical Report 5-1990. This report also provides a reference for customer premises connector wiring configurations used on the customer premises for customer premises equipment to equipment and equipment to premises wiring. Included in this catalog are those connector configurations that are specified by the Federal Communications Commission, Carrier Technical References and ANSI approved standards. This catalog is intended to be a living document, subject to revision and updating as warranted by the introduction of new connectors and wiring configurations.

Adherence to this catalog should provide interface compatibility in most installations, but the catalog does not guarantee compatibility or acceptable performance. If problems arise the user shall reference the appropriate regulation, technical reference or ANSI standard.

Suggestions for the improvement of this catalog are welcome. They should be sent to the Exchange Carriers Standards Association, 1200 G Street, N.W., Washington, DC 20005, (202) 434-8845.

This Technical Report was processed and approved for submittal to Committee T1 Telecommunications. Approval of the catalog does not necessarily imply that all members voted for its approval.

The working group on Connectors and Wiring Arrangements that developed this Technical Report had the following participants:

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## 1. SCOPE

The purpose of this Technical Report is to provide a catalog of connector configurations used at the Carrier to Customer Installation (CI) Interface and for those connectors used within the CI to connect customer premises equipment to customer premises equipment and customer premises equipment to customer premises wiring. Because of the changing environment and the introduction of new technology, this document will be a living document with periodic revisions issued by Committee T1.

This Technical Report also provides examples of the Facility Interface Codes (FIC) and the Network Channel Interface Codes (NCI) that are commonly associated with the connector configurations. Additional codes that are utilized with these connectors can be obtained from the local exchange carriers' interface documentation.

This Technical Report contains connector configurations currently in Subpart F of Part 68 of the FCC Rules and Regulations. Standard connector configurations utilized for services, not included under the scope of Part 68, are also included. New connector configurations may be considered for addition to this technical report by submitting the requirements and the accompanying rationale to Technical Subcommittee T1E1.

## 2. REFERENCES AND SOURCES

### 2.1 References

- [1] Code of Federal Regulations, Title 47, FCC Rules and Regulations, Part 68.
- [2] ANSI T1.401-1988, Interface between Carriers and Customer Installations, Analog Voicegrade and Switched Access Lines using Loop-start and Ground-start Signaling.
- [3] ANSI T1.403-1989. Carrier to Customer Installation, DS-1 Metallic Interface.
- [4] ANSI T1.404-1989, Carrier to Customer Installation, DS-3 Metallic Interface Specification.
- [5] ANSI T1.601-1988, Integrated Services Digital Network-Basic Access Interface for Use on Metallic Loops for Application on the Network side of NT - Layer 1 Specification.